'CLAIMS

1. Use of a multifunctional β-adrenergic receptor antagonist (β-blocker) compound comprising
   i) a β-blocker component,
   ii) at least one reactive oxygen species (ROS) scavenger component, and optionally
   iii) at least one nitric oxide (NO) donor component
   in the preparation of a medicament.

2. Use of a multifunctional β-blocker compound according to claim 1, comprising
   i) a β-blocker component,
   ii) at least one ROS-scavenger component, and
   iii) at least one nitric oxide (NO) donor component.

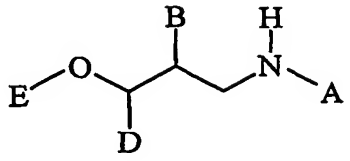
3. Use according to claim 1, wherein said β-blocker component is selected from the group consisting of compounds used in medicine as β-adrenergic blockers, derivatives thereof, and compounds exhibiting affinity for β-receptors.

4. Use according to claim 1, wherein said ROS-scavenger component comprises an antioxidant reacting with ROS selected from the group consisting of superoxide, hydroxyl radicals, peroxynitrite, and hypochlorite.

5. Use according to claim 1, wherein said NO-donor comprises a group capable of providing nitric oxide in a form selected from uncharged and charged.

6. Use according to claim 4, wherein said ROS-scavenger component comprises a substituted N-oxide free radical.

20. Use according to any on of claims 15 to 18, wherein said multifunctional β-blocker compound has formula III




wherein A is $C_1$-$C_4$ alkyl or ROS-scavenger group;

B is selected from OH, O-$NO_2$ and SH;

D is H, or D is $(CH_2)_2$ and is connected to E and together with the neighboring atoms forms a 5-6 membered ring consisting of carbon atoms and one oxygen atom; and

E is phenyl condensed with optionally substituted phenyl or optionally substituted 5-6 membered heterocycle containing one of -N- , -O-, and –S-S-; or

E is thiadiazolyl substituted with morpholinyl or pyrrolidinyl-N-oxide, said morpholinyl being optionally substituted with one of OH, NO-donor group, and ROS-scavenger group, and said pyrrolidinyl-N-oxide group being bound to said thiadiazolyl vial -S- or via -$CH_2$-O-.

21. Use according to claim 23, wherein said compound is selected from the group consisting of compounds nos. 14, 15, 20-75, 1', 2', and 7'-24' as shown below.

22. A a multifunctional β-adrenergic receptor antagonist (β-blocker) compound comprising

    i) a β-blocker component,

    ii) at least one reactive oxygen species (ROS) scavenger component, and optionally

    iii) at least one nitric oxide (NO) donor component

    for use as a medicament.

23. A method of treating or preventing a disorder selected from the group consisting of disorders in which treatment with a β-antagonist is indicated, disorders associated with oxidative stress and free radical injury, and disorders in which treatment with a smooth muscle relaxant is indicated, in a mammal in need thereof, comprising administering to said mammal an effective amount of a multifunctional β-blocker compound comprising i) a β-blocker component, ii) at least one reactive oxygen species (ROS) scavenger component, and optionally iii) at least one nitric oxide (NO) donor component.

24. A method according to claim 23, wherein said disorder is selected from the group consisting of ischemia, ischemia-reperfusion tissue injury, acute and chronic inflammatory conditions, angina, atherosclerosis, impotence, hypertension, pulmonary hypertension, systemic hypertension, obesity or pregnancy-induced hypertension, palpitations, arrhythmias, cardiomyopathy, congestive heart failure, hyperthyroidism, anxiety, tremor, migraine, alcohol withdrawal, tachycardia, thyrotoxicosis, pheochromocytoma, esophageal varices, glaucoma, conditions associated with excess intraocular fluid, diabetes mellitus, and carcinogenesis.

25. A method according to claim 23, wherein said administration or treatment is selected from the group consisting of topical, oral, and parenteral.

26. A method according to claim 23, wherein said administration or treatment is selected from the group consisting of suppository, by way of injection, and by way of infusion.

27. A method according to claim 23, wherein said multifunctional β-blocker compound is administered by a route selected from intramuscular, intraperitoneal, intravenous, ICV, intracisternal injection or infusion, subcutaneous injection, implant, inhalation spray, nasal, vaginal, rectal, sublingual, and urethral.

28. A method according to claim 23, wherein said mammal is human.

29. A multifunctional β-adrenergic receptor antagonist compound comprising
    i) a β-blocker component,
    ii) at least one ROS-scavenger component,
    and optionally
    iii) at least one NO-donor component.

30. A multifunctional antagonist according to claim 29, wherein said β-blocker component is selected from the group consisting of compounds used in medicine as β-adrenergic blockers, derivatives thereof, and compounds exhibiting affinity for β-receptors.

31. A multifunctional antagonist according to claim 29, wherein said ROS-scavenger component comprises an antioxidant reacting with ROS selected from the group consisting of superoxide, hydroxyl radicals, peroxynitrite, and hypochlorite.

32. A multifunctional antagonist according to claim 29, wherein said ROS-scavenger component comprises any of alkenyl group, aryl group, substituted aryl group, sulfhydryl, dithiol in oxidized or reduced form, and group that is converted *in vivo* into a sulfhydryl in its oxidized or reduced form.

i) a dosage amount of at least one compound having β-blocker activity and ROS-scavenging activity,

ii) instructions for use; and

iii) optionally means for the delivery of said compound.